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10/519,383	12/27/2004	Elisabeth Katz	MFR 126NP	6949

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EXAMINER

KAO, CHIH CHENG G

ART UNIT	PAPER NUMBER
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2882

DATE MAILED: 08/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/519,383	Applicant(s) KATZ, ELISABETH	
	Examiner Chih-Cheng Glen Kao	Art Unit 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-17 and 19-26 is/are rejected.
- 7) ☒ Claim(s) 11 and 18 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/27/04, 3/14/05</u> . | 6) <input checked="" type="checkbox"/> Other: <u>IDS: 6/13/06</u> . |

DETAILED ACTION

Information Disclosure Statement

1. The English-language abstract of Japanese patent publication No. 11132970 A (05/21/1999), as listed in the information disclosure statement (IDS) filed June 13, 2006, has already been considered by the examiner as evidenced by the enclosed signed copy of the IDS filed March 14, 2005.

Drawings

2. The drawings are objected to because the handwritten drawings make various aspects difficult to distinguish.

Figure 12 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the

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renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities. The specification refers to claims numerous times (paragraphs 1, 9, 13, 14, and 16-20), which may create discrepancies and new matter issues if future claim amendments were to be made. Therefore, the examiner suggests removing all references to the claims that are in the specification.

Appropriate correction is required.

Claim Objections

4. Claims 1-26 are objected to because of the following informalities, which appear to be minor draft errors including grammatical and/or lack of antecedent basis problems.

In the following format (location of objection; suggestion for correction), the following correction(s) may obviate the objection(s): (claim 1, line 8, "the direction"; replacing "the" with - -a- -), (claim 3, line 2, "the second X-ray conductor"; changing the dependency of claim 3 from claim 1 to claim 2), (claim 6, line 2, "the hollow tubes"; replacing "hollow tube" with - -or more hollow tubes- - in lines 2-3 of claim 3), (claim 6, line 3, "the end"; replacing "the end" with - -an end of those hollow tubes- -), (claim 7, line 2, "the hollow tubes"; replacing "hollow tube" with -

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-or more hollow tubes- - in lines 2-3 of claim 3), (claim 8, line 2, "the hollow tubes"; replacing "hollow tube" with - -or more hollow tubes- - in lines 2-3 of claim 3), (claim 8, line 3, "the operation"; deleting "the"), (claim 9, line 4, "the X-ray conductor ends"; deleting "the"), (claim 10, line 2, "and these are"; deleting "these"), (claim 11, line 1, "the axes"; deleting "the"), (claim 11, line 2, "the end"; replacing "the end" with - -an end of the X-ray conductors- -), (claim 12, line 1, "claim7"; inserting a space between "claim" and "7"), (claim 12, line 3, "the end"; replacing "the end" with - -an end of the second X-ray conductor- -), (claim 13, line 2, "the axes"; deleting "the"), (claim 15, line 2; replacing "it" with - -the device- -), (claim 15, lines 2-3, "the height"; replacing "the" with - -a- -), (claim 15, line 3, "the sample surface"; replacing "the sample" with - -a substance- -), (claim 19, line 2, "the parallel alignment"; deleting "the"), (claim 19, lines 2-3, "the X-rays"; deleting "the"), (claim 19, line 3, "the beam path"; replacing "the" with - -a- -), (claim 20, line 3, "the beam path"; replacing "the" with - -a- -), (claim 21, line 2, "the beam path"; replacing "the" with - -a- -), (claim 22, line 2, "the exciting radiation"; deleting "the"), (claim 22, line 3, "the sample surface"; replacing "the sample" with - -a substance- -), (claim 24, line 2, "the flat angle"; replacing "the" with - -a- -), (claim 24, lines 2-3, "the polarized radiation"; deleting "the"), and (claim 25, line 2, "the filter"; changing the dependency of claim 25 from claim 6 to claim 20).

Claims 2-26 are objected to by virtue of their dependency. For purposes of examination, the claims have been treated as such. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 9, 19-21, and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Kumakhov (US 5497008).

6. Regarding claim 1, Kumakhov discloses a device comprising a conveying device (fig. 7, #108) for a substance (fig. 7, #106) to be measured, a measuring station with an X-ray source (fig. 7, #100) and an X-ray fluorescence (col. 6, line 1) detector having a radiation inlet (fig. 7, #112), characterized in that at least one first X-ray conductor (fig. 7, #110) extends from the radiation inlet of the X-ray fluorescence detector (fig. 7, #112) in a direction of the conveying device (fig. 7, #108).

7. Regarding claim 2, Kumakhov further discloses the device characterized in that at least a second X-ray conductor (fig. 7, #104) extends from the X-ray source (fig. 7, #100) in the direction of the conveying device (fig. 7, #108).

8. Regarding claim 3, Kumakhov further discloses the device characterized in that the first (fig. 7, #110) and/or the second (fig. 7, #104) X-ray conductor each consist of at least one or more hollow tubes (col. 5, lines 20-21).

9. Regarding claim 9, Kumakhov further discloses the device characterized in that the first (fig. 7, #110) and second (fig. 7, #104) X-ray conductors are combined in such a way a bundle of at least two X-ray conductors (fig. 6a, #70 and 76, and fig. 12) is formed at X-ray conductor ends facing the conveying device (fig. 7, #108).

10. Regarding claim 19, Kumakhov further discloses the device characterized in that an X-ray split lens (fig. 8, #132) for parallel alignment of X-rays is disposed in a beam path from the X-ray source (fig. 8, #130).

11. Regarding claim 20, Kumakhov further discloses the device characterized in that a filter or a monochromatic element (fig. 8, #134) is arranged in a beam path from the X-ray source (fig. 8, #130).

12. Regarding claim 21, Kumakhov further discloses the device characterized in that a polarizer (col. 8, lines 24-28) is arranged in a beam path from the X-ray source (fig. 8, #130).

13. Regarding claim 26, Kumakhov further discloses the device characterized in that the measuring station (figs. 6a and 7, #68 and 78) is arranged on a traversing and/or pivoting carriage (fig. 7, carriage of #106).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumakhov ('008) as applied to claim 3 above, and further in view of Kumakhov (US 5192869).

Kumakhov ('008) discloses a device as recited above. Kumakhov ('008) further discloses the device characterized in that the hollow tube is a capillary (col. 5, lines 20-21).

However, Kumakhov ('008) fails to disclose wherein a hollow tube in part is made of glass.

Kumakhov ('869) teaches wherein a hollow tube in part is made of glass (col. 14, lines 53-64).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to include the device of Kumakhov ('008) with the glass of Kumakhov ('869), since one would be motivated to make such a modification for increasing efficiency (col. 14, lines 53-64) as implied from Kumakhov ('869).

15. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kumakhov as applied to claim 3 above, and further in view of Gorny et al. (DE 4408057).

Kumakhov discloses a device as recited above. Kumakhov further discloses the device characterized in that at least some of the hollow tubes (fig. 7, #104) face the conveying device (fig. 7, #108).

However, Kumakhov fails to disclose providing a window at an end.

Gorny et al. teaches providing a window at an end (fig. 1, #9).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to include the device of Kumakhov with the window of Gorny et al., since one would be motivated to make such a modification for better protection.

16. Claims 7, 8, 10, 12, 13, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumakhov as applied to claim 3 above, and further in view of Hendee et al. (US 2837656).

17. Regarding claims 7 and 8, Kumakhov discloses a device as recited above.

However, Kumakhov fails to disclose filling with hydrogen or helium, or flushing with helium during operation via a connected helium source.

Hendee et al. teaches filling (fig. 1, at #12) with hydrogen or helium (col. 1, #9 and helium), or flushing (fig. 1, at #12) with helium during operation via a connected helium source (fig. 1, #9).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to include the device of Kumakhov with the helium of Hendee et al., since one would be motivated to make such a modification for reducing absorption of X-rays (col. 1,

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line 67, to col. 2, line 5) as shown by Hendee et al., which would reduce the degradation of relevant signals.

18. Regarding claim 10, Kumakhov further discloses the device characterized in that several first and second X-ray conductors (col. 5, lines 20-21) exist and are combined so as to create a matrix-type structure (fig. 7, #104 and 110).

19. Regarding claim 12, Kumakhov further discloses the device characterized in that at least one second X-ray conductor (fig. 7, #104) and several first (fig. 7, #110) X-ray conductors (col. 5, lines 20-21) are provided, which are arranged around the second X-ray conductor (fig. 7, #104), at least at an end of the of the second X-ray conductor facing the conveying device (fig. 7, #108).

20. Regarding claim 13, Kumakhov further discloses the device characterized in that axes of at least one second X-ray conductor (fig. 6a, #70) and at least one first X-ray conductor (fig. 6a, #76) jointly enclose an acute angle in the direction of the conveying device (fig. 7, #108).

21. Regarding claim 23, Kumakhov further discloses the device characterized in that the angle is a flat angle (fig. 6a, angle defined by the beams between #70 and 76).

22. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kumakhov as applied to claim 1 above, and further in view of Nakahara et al. (US 5305366).

Kumakhov discloses a device as recited above.

However, Kumakhov fails to disclose wherein at least one thermal shield is disposed between an X-ray fluorescence detector and a device.

Nakahara et al. teaches wherein at least one thermal shield (fig. 1, #41) is disposed between an X-ray fluorescence detector (fig. 1, #2) and a device (fig. 1, #52).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to include the device of Kumakhov with the shield of Nakahara et al., since one would be motivated to make such a modification to reduce adverse effects on the detector (col. 7, lines 56-65) as shown by Nakahara et al.

23. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumakhov as applied to claim 1 above, and further in view of Kojima et al. (US 2001/0021240).

Kumakhov discloses a device as recited above.

However, Kumakhov fails to disclose a distance sensor for measuring a height of a substance surface, characterized in that the distance sensor is a laser distance sensor.

Kojima et al. teaches a distance sensor (fig. 1, #37) for measuring a height of a substance surface (paragraph 34), characterized in that the distance sensor is a laser distance sensor (paragraph 36, last line).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to include the device of Kumakhov with the distance sensor of Kojima et al., since one would be motivated to make such a modification for better focusing (paragraph 36, last 4 lines).

24. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kumakhov and Kojima et al. as applied to claim 16 above, and further in view of Kissinger (US 3327584).

Kumakhov as modified above suggests a device as recited above.

However, Kumakhov fails to disclose wherein a waveguide is connected to a distance sensor to permit a remote distance measuring.

Kissinger teaches wherein a waveguide (fig. 5, #1) is connected to a distance sensor (fig. 5, #20) to permit a remote distance measuring (col. 1, line 24).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to include the device of Kumakhov as modified above with the waveguide of Kissinger, since one would be motivated to make such a modification for a smaller probe with extremely fine measurements (col. 1, lines 17-21) as shown by Kissinger.

25. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kumakhov as applied to claim 1 above, and further in view of Hossain et al. (US 5778039).

Kumakhov discloses a device as recited above.

However, Kumakhov fails to disclose a first X-ray conductor and exciting radiation from an X-ray source essentially having the same angle relative to a substance surface.

Hossain et al. teaches a first X-ray conductor (fig. 3, #38) and exciting radiation (fig. 3, #80) from an X-ray source (fig. 3, #30) essentially having the same angle (figs. 1 and 3) relative to a substance surface (fig. 3, #44).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to include the device of Kumakhov with the angle of Hossain et al., since one would be motivated to make such a modification for providing the space necessary to have a system that reduces time during analysis (col. 1, lines 38-57), while keeping the system compact (fig. 3) as implied from Hossain et al.

26. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kumakhov as applied to claim 21 above, and further in view of Balu et al. (DD 291420).

Kumakhov discloses a device as recited above.

However, Kumakhov fails to disclose a flat angle corresponding to the Brewster angle for polarized radiation.

Balu et al. teaches a flat angle corresponding to the Brewster angle for polarized radiation (abstract).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to include the device of Kumakhov with the angle of Balu et al., since one would be motivated to make such a modification for obtaining a favorable signal/background ratio and producing high reflection (use/advantage) as shown by Balu et al.

27. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kumakhov as applied to claim 20 above, and further in view of Hossain et al. (US 5754620).

Kumakhov discloses a device as recited above.

However, Kumakhov fails to disclose a filter functioning as a window.

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Hossain et al. teaches a filter functioning as a window (fig. 1a, #84).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to include the device of Kumakhov with the filter of Hossain et al., since one would be motivated to make such a modification for better filtering out certain characteristic radiation (col. 7, lines 57-62) as shown by Hossain et al., which would reduce noise.

Allowable Subject Matter

28. Claims 11 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter.

29. Regarding claim 11, prior art fails to disclose or fairly suggest a device, including axes of X-ray conductors parallel to each other at an end of the X-ray conductors facing a conveying device, in combination with all the limitations in the claim.

30. Regarding claim 18, prior art fails to disclose or fairly suggest a device, including a waveguide forming a bundle together with at least one first X-ray conductor, in combination with all the limitations in the claim.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Chih-Cheng Glen Kao
Examiner
Art Unit 2882